

IN THE CLAIMS:

1. (Currently Amended) A method of cleaning ~~film deposition equipment, having a treatment chamber in which a metal film may be stuck to an inside surface thereof, the chamber being connected to piping and exhaust connected to a vacuum pump~~, comprising:
 - (a) ~~vaporizing a cleaning agent to form a vaporized cleaning agent;~~
 - (b) ~~supplying the vaporized cleaning agent through the piping into the chamber which is being evacuated;~~
 - (c) ~~directly forming a metal complex by contacting the vaporized cleaning agent with the metal inside of the chamber; and~~
 - ~~forming a material including a metal inside the chamber;~~
 - ~~supplying a cleaning agent including one of a carboxylic acid and a derivative of carboxylic acid into the chamber such that the cleaning agent contacts the material to form a metal complex of the metal and the cleaning agent; and~~
 - ~~(d) subliming the metal complex and exhausting it from the chamber through the exhaust by using a heat source.~~
2. (Canceled)
3. (Currently Amended) The ~~cleaning~~ method of cleaning of claim 1, wherein the cleaning agent is a compound selected from ~~the group comprising among the following:~~ RCOOH, RCOOR', ~~and~~ R(COOH)_n (R, R' are hydrocarbon groups containing halogen atoms, n being an integer), and a composition thereof.
4. (Currently Amended) The ~~cleaning~~ method of cleaning of claim 1, wherein the cleaning agent is comprises trifluoroacetic acid.
5. (Currently Amended) The ~~cleaning~~ method of cleaning of claim 1, wherein the ~~film deposition equipment treatment chamber~~ is a component of one of a chemical vapor deposition equipment and a physical vapor deposition equipment.

6. (Currently Amended) The cleaning method of cleaning of claim 1, wherein the metal is copper.

7. (Currently Amended) The cleaning method of cleaning of claim 1, further comprising adding supplying an additive to the vaporized cleaning agent to promote that promotes complexing formation of the metal complex of the vaporized cleaning agent with and the metal.

8. (Currently Amended) The cleaning method of cleaning of claim 7, wherein the additive [is water vapor] includes oxygen.

9. (Currently Amended) A method of cleaning film deposition equipment, having a treatment chamber in which a metal film may be stuck to an inside surface thereof, the chamber being connected to piping and exhaust connected to a vacuum pump, comprising:

(a) vaporizing a cleaning agent to form a vaporized cleaning agent;
(b) supplying the vaporized cleaning agent through the piping into the chamber which is evacuated;
(c) directly forming a metal complex by contacting the vaporized cleaning agent with the metal inside of the chamber; and

forming a material including a metal inside the chamber;
supplying a cleaning agent including one of a carboxylic acid and a derivative of carboxylic acid into the chamber such that the cleaning agent contacts the material to form a metal complex of the metal and the cleaning agent;

(d) subliming the metal complex and exhausting it from the chamber through the exhaust by using a heat source; and
repeating said supplying a cleaning agent and repeating said subliming the metal.

10. (Canceled)

11. (Withdrawn) Treatment equipment, comprising:
a treatment chamber for treating a substrate;
a susceptor disposed in the treatment chamber and on which the substrate is disposed;

a treatment gas supply system for supplying, in the treatment chamber, a treatment gas containing copper as a component;

an evacuation system for evacuating the inside of the treatment chamber; and

a TFA supply system for supplying trifluoroacetic acid in the treatment chamber.

12. (Withdrawn) The treatment equipment of claim 11:

wherein the treatment gas supply system comprises a treatment agent tank, treatment gas supply piping connecting the treatment chamber and the treatment agent tank and a treatment agent vaporizer disposed in the middle of the treatment gas supply piping;

wherein the TFA supply system comprises a TFA tank and a TFA supply piping connecting the TFA tank and the treatment gas supply piping, the treatment gas supply piping being downstream the treatment agent vaporizer in a direction of treatment gas movement.

13. (Withdrawn) The treatment equipment of claim 12:

wherein at least in a portion downstream the vaporizer of the treatment agent supply piping a heater is disposed.

14. (Withdrawn) The treatment equipment of claim 13:

wherein the treatment chamber is furnished with a heater to heat a wall surface of the treatment chamber.

15. (Withdrawn) The treatment equipment of claim 12:

wherein the treatment agent tank is a tank containing copper as a component.

16. (Withdrawn) The treatment equipment of claim 11, further comprising:

a supply system for supplying an additive that promotes complexing of copper.

17. (New) A method of removing a material including a metal comprising:

forming a metal complex by contacting a cleaning agent including one of a carboxylic acid and a derivative of carboxylic acid with the material including the metal; and
subliming the metal complex with a heat source.

18. (New) The method of cleaning of claim 17,
wherein, in said subliming the metal complex, the metal complex is heated at a
temperature of at least 150°C.

19. (New) The method of cleaning of claim 17,
wherein, in said forming a metal complex, the cleaning agent is vaporized to form a
vaporized cleaning agent and the pressure of the vaporized cleaning agent is at least 100 Torr.

20. (New) The method of cleaning of claim 1,
wherein, in said supplying a cleaning agent, the cleaning agent is vaporized.

21. (New) The method of cleaning of claim 1, further comprising:
confirming the existence of the material inside the chamber; and
repeating said supplying a cleaning agent and repeating said subliming the metal
complex, if the existence of material inside the chamber is confirmed.